

## Section II. (REMARKS)

The pending claims in the application are 15-37.

### Provisional Double Patenting Rejection Under the Judicially Created Doctrine of Obviousness-Type Double Patenting

In the October 24, 2006 Office Action, the Examiner provisionally rejected claims 15-17 and 20-23 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 49-64 of U.S. Patent Application No. 10/602,172, now U.S. Patent No. 7,119,052.

According to the Examiner:

“Although the conflicting claims are not identical, they are not patentably distinct from each other because the cleaning process of the copending application broadly encompasses the removal process of BARC material of the instant application.” (see October 24, 2006 Office Action, page 8, lines 14-17)

As a matter of law, the test for obviousness-type double patenting is whether the claimed invention of the subject application would have been obvious from the subject matter of the claims in the cited reference, in light of the prior art. *See, In re Longi*, 225 U.S.P.Q. 645 (Fed. Cir. 1985). Further, the initial burden of establishing a *prima facie* case of obviousness is always on the Examiner. *In re Oetiker*, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992).

Importantly, the Examiner appears to have relied on paragraph [0050] of the copending application to determine that the “cleaning process of the copending application broadly encompasses the removal process of BARC material” (“[s]uch cleaning compositions . . . are advantageous for cleaning of photoresists, anti-reflective coatings, metal oxides and/or metal-containing residues that are present on the semiconductor wafer after plasma etching or ashing.”). As introduced hereinabove, it is improper to resort to the specification when attempting to establish a *prima facie* case of obviousness-type double patenting.

Further, a review of the claims in Application No. 10/602,172 shows that none of the claims motivate, teach or suggest a method of removing a BARC layer from a substrate having same

thereon. For example, claim 49 of the copending application teaches a "method of cleaning a semiconductor wafer." There are a multitude of discrete cleaning/removing processes used during semiconductor wafer manufacturing including, but not limited to, cleaning post-etch residue, cleaning post-ash residue, cleaning post-CMP residue, removing photoresist, removing BARC, etc. The recitation in claim 49 of the copending application ("a method of cleaning a semiconductor wafer") makes the presently claimed invention ("a method of removing a BARC layer from a substrate") obvious to try, at best. Obvious to try is not the standard of 35 U.S.C. §103.

In conclusion, the Examiner has failed to establish a *prima facie* case of nonstatutory obviousness-type double patenting in view of U.S. Patent Application No. 10/602,172. Withdrawal of said rejection is hereby requested.

#### **Rejection of Claims and Traversal Thereof**

In the January 30, 2007 Advisory Action:

claim 36 remained rejected under 35 U.S.C. §112, first paragraph;

claims 15-23, 25-27, 30, 35 and 37 remained rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal (U.S. Patent Application Publication No. 2004/0050406A1);

claims 24 and 28-30 remained rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal in view of De Young et al. (U.S. Patent No. 6,669,785); and

claims 31-34 remained rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal (U.S. Patent Application Publication No. 2004/0050406A1) in view of Xu et al. (U.S. Patent Application Publication No. 2003/0125225).

These rejections are traversed and reconsideration of the patentability of the pending claims is requested in light of the following remarks.

#### **Rejection under 35 U.S.C. §112, first paragraph**

In the October 24, 2006 Office Action, claim 36 was rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. Applicants traverse such rejection.

As previously introduced, to satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. MPEP §2163 (I) (citing *Vas-Cath, Inc. v. Mahurkar*, 19 U.S.P.Q.2d 1111, 1116 (Fed. Cir. 1991)). Claim limitations may be supported in the specification through express, implicit or inherent disclosure. See, MPEP §2163.

Turning to the present case, applicants disclose that the composition is useful for removing ion implanted photoresist layers from a substrate having same thereon (see, e.g., instant specification, paragraph [0016] and [0030]). Accordingly, when applicants' composition comprising at least one SCF, at least one co-solvent, at least one etchant, and at least one surfactant is used according to the process of claim 36, wherein a substrate having an ion-implanted photoresist layer thereon is contacted with the composition, the composition will thereafter further include ion implanted photoresist material. If the composition includes ion implanted photoresist material, the composition will inherently include at least one implantation ion.

Further, as stated in MPEP §2163, the examiner has the initial burden of presenting evidence or reasoning to explain why persons skilled in the art would not recognize in the original disclosure a description of the invention defined by the claims. See *In re Wertheim*, 191 USPQ 90, 97 (CCPA 1976).

In the January 30, 2007 Advisory Action, the Examiner continues to state that the specification fails to disclose that the SCF-based composition includes "at least one implanted ion." Express disclosure is not the standard - a specification that implicitly or inherently discloses the claimed invention also satisfies the written description requirement. At this point, **the Examiner's burden is to present evidence or reasoning to explain why one skilled in the art would not recognize in the original disclosure the inherent disclosure of the invention defined by the claims**.

Further, the Examiner recites in the January 30, 2007 Advisory Action:

“[i]t is also pointed out that the claim 36 is not limited to an [sic] used composition or reusing [sic] the composition for removal process and only then the composition may include the at least [sic] implanted ion.” (emphasis added)

The Examiner has indicated that the only way that the composition may include the at least one implanted ion is during reuse or recycling, however, the Examiner’s attention is directed to the instant specification at paragraphs [0042]-[0045], which recites that the substrate may be processed by statically soaking the substrate in the SCF-based removal composition. If a user were to statically soak a substrate including ion implanted photoresist material in applicants’ claimed removal composition, wouldn’t the removal composition include ion implanted photoresist material, and hence at least one implantation ion, even without reuse or recycling? Applicants should not be required to limit claim 36 to recycling or reusing because these do not represent the only conceivable moments when applicants’ removal composition may include at least one implantation ion.

Accordingly, withdrawal of the rejection of claim 36 under §112, first paragraph, is respectfully requested.

#### **Rejection under 35 U.S.C. §103(a)**

1. In the October 24, 2006 Office Action, claims 15-23, 25-27, 30, 35 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal (U.S. Patent Application Publication No. 2004/0050406A1) (hereinafter Sehgal). Applicants traverse such rejection.

In the January 30, 2007 Advisory Action, the Examiner recited:

“Applicants argue that Sehgal does not teach the temperature of the supercritical fluid could be in the range of 50-90 degree C.

In response to the argument examiner states that the argument is not persuasive because Sehgal illustrates in the phase diagram that the temperature grater [sic] than 31 degree C is in the supercritical state with the pressure greater than 72.8 atm. [ ] Therefore, it would have been obvious to one skilled in the art to select temperature between the 31 degree and 110 degree C unless applicant show some criticality to perform the removal step within the claimed range.”

Applicants vigorously disagree.

Sehgal does include a schematic of the CO<sub>2</sub> phase diagram, as reproduced below for ease of reference. It can be seen that so long as the pressure is greater than 72.8 atm and the temperature is greater than 31°C, CO<sub>2</sub> is in the supercritical state.

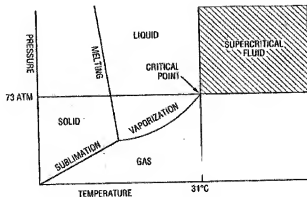


FIG. 1

Contrary to the Examiner's contentions, Sehgal does not make obvious the selection of a temperature between 31°C and 110°C. The CO<sub>2</sub> phase diagram is the most well known phase diagram and all persons using supercritical CO<sub>2</sub> are confronted with the decision of which temperature greater than 31°C to select (at pressure greater than 72.8 atm). Where is the motivation, teaching or suggestion in Sehgal to for example select a temperature between 31°C and 110°C and not a temperature greater than 110°C, which also corresponds to supercritical CO<sub>2</sub>? Even more specifically, where is the motivation, teaching or suggestion in Sehgal to select a temperature between 50°C and 90°C?

All this well known CO<sub>2</sub> phase diagram does is make it obvious to try any of the temperatures above the critical temperature. Obvious to try is not the standard for establishing obviousness.<sup>1</sup>

The Examiner is respectfully reminded that in order to make a legally sufficient rejection under 35 U.S.C. §103(a) based on a modification of a reference disclosure, the Examiner must explain

<sup>1</sup> "In some cases, what would have been 'obvious to try' would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful...." *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)

with specificity what areas of the reference suggest the modification. *Ex parte Humphreys*, 24 U.S.P.Q.2d 1255, 1262 (B.P.A.I. 1992).

In conclusion, the Examiner has not established a *prima facie* case of obviousness because obvious to try is not the legal standard. Withdrawal of the rejection of claims 15-23, 25-27, 30, 35 and 37 as being rejected under 35 U.S.C. §103(a) over Sehgal is respectfully requested.

2. In the October 24, 2006 Office Action, claims 24 and 28-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal in view of DeYoung et al. (U.S. Patent No. 6,669,785) (hereinafter DeYoung). Applicants traverse such rejection.

In the January 30, 2007 Advisory Action, the Examiner recited:

“Applicants also argue that the combination of Sehgal and De Young is not permissible because Sehgal is relating with single step removing process [sic], whereas De Young is dealing with multi-step process.

In response, examiner states that the argument is not commensurate with the claims and additionally, De young reference is not applied to show the steps of the process but to show the use of both the triethylamine trihydrofluoride and hydrogen fluoride in the stripping of photoresist material.”

It is well established that prior art references must be considered as a whole. *W.L. Gore & Associates, Inc., v. Garlock, Inc.*, 220 U.S.P.Q. 303 (Fed. Cir. 1993), *cert. denied*, 469 U.S. 851 (1984). In so doing, the Examiner must, view Sehgal as a single step removing process and DeYoung as a multi-step process. Instead, the Examiner has admitted that the DeYoung reference was applied to show the use of triethylamine trihydrofluoride and hydrogen fluoride. In other words, respectfully, the Examiner has admitted the arbitrary dissection of DeYoung to extract the triethylamine trihydrofluoride and hydrogen fluoride and incorporate it into Sehgal to arrive at something allegedly approximating the present invention. It is well established in the law that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

In conclusion, applicants request that the Examiner withdraw the rejection of claims 24 and 28-30

as being unpatentable over Sehgal in view of DeYoung.

3. In the October 24, 2006 Office Action, claims 31-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sehgal in view of Xu et al. (U.S. Patent Application Publication No. 2003/0125225) (hereinafter Xu). Applicants traverse such rejection.

In the January 30, 2007 Advisory Action, the Examiner recited:

“Applicants further argue that Xu teach [sic] cyclic process including a pressure change and so Xu is not combinable with Sehgal because Sehgal teaches away to change pressure.

In response, examiner states that Xu is introduced to show repetitive contacting removal or [sic] cleaning solution in order to expedite the removal or cleaning process and one of ordinary skilled [sic] in the art would have been motivated [sic] to do so for complete removal of undesired [sic] residue as suggested by Xu.”

Again, respectfully, the Examiner has admitted the arbitrary dissection of Xu to extract the repetitive contacting removal and incorporate it into Sehgal to arrive at something allegedly approximating the present invention. This is not legally permissible. As indicated in the foregoing argument, the Examiner must consider the prior art references as a whole and is not allowed to resort to hindsight reconstruction.

In conclusion, applicants request that the Examiner withdraw the rejection of claims 31-34 as being unpatentable over Sehgal in view of Xu.

#### **Fees Payable**

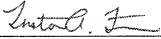
The fee of \$120.00 specified in 37 CFR §1.17(a)(1) for the one (1) month extension and the fee of \$790.00 for the Request for Continued Examination, for a total of \$910.00, is being paid by Electronic Funds Transfer. Authorization is hereby given to charge any deficiency in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC.

#### **Conclusion**

Claims 15-37 are now in form and condition for allowance. Favorable action is hereby requested. Authorization is hereby given to charge any deficiency in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC. If any additional issues remain, the Examiner is requested to contact the undersigned attorney at (919) 286-8090 to discuss same.

Respectfully submitted,  
MOORE & VAN ALLEN PLLC

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